



The LLC1 Series is a single probe conductive liquid level control designed for OEM equipment and commercial appliances. This unit may be ordered with selectable or fixed fill or drain operation. A time delay (1-60s) prevents rapid cycling of the output relay. On adjustable units, the sensitivity adjustment allows accurate level sensing while ignoring foaming agents and floating debris. Isolated AC voltage is provided at the probe to prevent electrolysis. A trickle current of less than 1mA determines the presence or absence of liquid between the probe and common. The LLC1 Series printed circuit board is conformal coated to resist moisture and corrosion.

For more information see:  
Appendix B, page 167, Figure 26 for dimensional drawing.  
Appendix C, page 170, Figure 23 for connection diagram.

### Operation

**Drain (Pump-Down Mode):** When the liquid level rises and touches the probe, a fixed time delay begins. This time delay prevents rapid cycling of the output relay and its load. At the end of the time delay, the output relay energizes and remains energized until the liquid level falls below the probe. The output relay then de-energizes and remains de-energized until the liquid again touches the probe.

**Fill (Pump-Up Mode):** When the liquid level falls below the probe, a fixed time delay begins. This time delay prevents rapid cycling of the output relay and its load. At the end of the time delay, the output relay energizes and remains energized until the liquid level rises and touches the probe. The output relay then de-energizes and remains de-energized until the liquid level again falls below the probe.

### Features:

- Single probe level control for conductive liquids
- Isolated AC voltage on the probes
- Adjustable or fixed sensing up to 250KΩ
- Fill or drain operation available
- 24, 120, or 230VAC models are available
- Isolated, 10A, SPDT & non-isolated, SPST output contacts

Approvals:

### Auxiliary Products:

- **Quick connect to screw adaptor:**  
P/N: P1015-18
- **Electrode:** P/N: PHST-38QTN
- **Threaded probe (24"):** P/N: LLP-24
- **Female quick connect:**  
P/N: P1015-13 (AWG 10/12)  
P/N: P1015-64 (AWG 14/16)  
P/N: P1015-14 (AWG 18/22)

### Available Models:

LLC14A1AX	LLC14B60AX
LLC14A5AX	LLC16A25AX
LLC14A7AX	LLC16A3AX
LLC14B15AX	LLC16B60A
LLC14B1AX	

If desired part number is not listed, please call us to see if it is technically possible to build.

### Order Table:

<u>LLC1</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>
<b>Input</b>	<b>Operation</b>	<b>Time Delay</b>	<b>Sense Resistance</b>	<b>Mounting</b>	
-2 - 24VAC	-A - Drain	Fixed: Specify 1-60s in 1s increments	-A - Adjustable	-Blank - Surface mount	
-4 - 120VAC	-B - Fill		-F - Fixed (Specify fixed resistance (1-250) in 1KΩ increments.)	-X - 0.5 in. nylon standoffs (three)	
-6 - 230VAC					

### Specifications

<b>Control</b>	Type . . . . . ON/OFF (single level) resistance sensor with built-in time delay to prevent rapid cycling	<b>Protection</b>	Surge . . . . . IEEE C62.41-1991 Level A
<b>Sense Voltage</b>	. . . . . Low voltage AC between probe & common. Isolated from input & output.	<b>Isolation Voltage</b>	. . . . . ≥ 1500V RMS between input, output & probe
<b>Sense Resistance</b>	. . . . . Fixed or adjustable to 250KΩ	<b>Mechanical</b>	
<b>Sense Resistance Tolerance</b>	. . . . . Adjustable - guaranteed range Factory fixed ±10%	<b>Mounting</b>	. . . . . Surface mount to probe common with two #6 (M3.5 x 0.6) screws or 0.50 in. (12.7 mm) nylon standoffs with three #6 (M3.5 x 0.6) screws (use Terminal 5 for probe common)
<b>Time Delay</b>		<b>Termination</b>	. . . . . 0.25 in. (6.35 mm) male quick connect terminals
<b>Range</b>	. . . . . Fixed 1 - 60s in 1s increments	<b>Dimensions (Open Board)</b>	. . . . . 3.5 x 2.75 x 2 in. (88.9 x 69.9 x 50.8 mm)
<b>Input</b>		<b>Environmental</b>	
<b>Voltage</b>	. . . . . 24, 120, or 230VAC	<b>Operating / Storage Temperature</b>	. . . . . -20° to 55°C / -40° to 80°C
<b>Tolerance</b>	24VAC . . . . . -15% - 20%	<b>Coating</b>	. . . . . Printed circuit board is conformal coated to resist moisture and corrosion
	120 & 230VAC . . . . . -20% - 10%	<b>Weight</b>	. . . . . ≅ 8.7 oz (247 g)
<b>AC Line Frequency</b>	. . . . . 50/60 Hz		
<b>Output</b>			
<b>Type</b>	. . . . . Electromechanical relay		
<b>Form</b>	. . . . . Non-isolated, SPST & Isolated, SPDT contacts		
<b>Rating</b>	. . . . . 10A resistive @ 120/240VAC & 28VDC; 1/3 hp @ 120/240VAC		
<b>Life</b>	. . . . . Mechanical - 1 x 10 <sup>7</sup> ; Electrical - 1 x 10 <sup>5</sup>		



The LLC2 Series is a dual-probe conductive liquid level control designed for OEM equipment and commercial appliance applications. Models are available for fill or drain operation. Transformer isolated 12VAC is provided at the probes to prevent electrolysis. A trickle current of less than 1mA determines the presence or absence of liquid between the probes and common. On adjustable units, the sensitivity adjustment allows accurate level sensing while ignoring foaming agents and floating debris. The LLC2 Series printed circuit board is conformal coated to resist moisture and corrosion.

For more information see:  
 Appendix B, page 167, Figure 27 for dimensional drawing.  
 Appendix C, page 170, Figure 27 for connection diagram.

### Operation

**Drain (Pump-Down Mode):** When the liquid level rises and touches the high probe, the output relay energizes and remains energized until the liquid level falls below the low probe. The output relay then de-energizes and remains de-energized until the liquid again touches the high probe.

**Fill (Pump-Up Mode):** When the liquid level falls below the low probe, the output relay energizes and remains energized until the liquid level rises and touches the high probe. The output relay then de-energizes and remains de-energized until the liquid level again falls below the low probe.

### Features:

- Dual probe level control for conductive liquids
- Isolated AC voltage on the probes
- Adjustable or fixed sensing up to 100KΩ
- Terminal block or quick connect terminals
- Fill or drain operation available
- 24, 120, or 230VAC models are available
- Isolated, 10A, SPDT output contacts

Approvals:

### Auxiliary Products:

- **Quick connect to screw adaptor:**  
P/N: P1015-18
- **Electrode:** P/N: PHST-38QIN
- **Threaded probe (24"):** P/N: LLLP-24
- **Female quick connect:**  
P/N: P1015-13 (AWG 10/12)  
P/N: P1015-64 (AWG 14/16)  
P/N: P1015-14 (AWG 18/22)

### Available Models:

- LLC24A2AN
- LLC24A2F50N
- LLC24B2F50N
- LLC26A1F25C

If desired part number is not listed, please call us to see if it is technically possible to build.

### Order Table:

<b>LLC2</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>Input</b>		<b>Operation</b>	<b>Termination</b>	<b>Sense Resistance</b>	<b>Mounting Dimension</b>
-2 - 24VAC		-A - Drain	-1 - 0.25 Quick Connect	-A - Adjustable to 100kΩ	-N
-4 - 120VAC		-B - Fill	-2 - Terminal Block	-F - Fixed (Specify fixed resistance 1-100 in 1KΩ increments.)	-C
-6 - 230VAC					

	N	C
W	0.44 (11.35)	0.25 (6.35)
X	3.62 (11.35)	3.5 (88.9)
Y	2.12 (53.8)	2.5 (63.5)
Z	0.19 (4.83)	0.25 (6.35)

Mounting dimensions as indicated in Appendix B, page 167.

### Specifications

Control Type .....	Resistance sensing for high & low level detection of conductive liquids	Termination .....	0.25 in. (6.35 mm) duplex male quick connect terminals
Sense Voltage .....	12VAC at probe terminals	Terminal blocks for up to #14 AWG (2.5 mm <sup>2</sup> ) wire	
Sense Resistance .....	Fixed or adjustable to 100KΩ	Dimensions (Open Board) .....	4 x 3 x 2 in. (101.6 x 76.2 x 50.8 mm)
Sense Resistance Tolerance .....	Adjustable: guaranteed range Fixed: ±10%	Environmental	
Input Voltage .....	24, 120, or 230VAC	Operating / Storage Temperature .....	-20° to 55°C / -40° to 80°C
Tolerance .....	24VAC: -15% - 20% 120 & 230VAC: -20% - 10%	Coating .....	Printed circuit board is conformal coated to resist moisture and corrosion
AC Line Frequency .....	50/60 Hz	Weight .....	≅ 9 oz (255 g)
Output Type .....	Electromechanical relay		
Form .....	Isolated, SPDT		
Rating .....	10A resistive @ 120/240VAC & 28VDC; 1/3 hp @ 120/240VAC		
Life .....	Mechanical - 1 x 10 <sup>7</sup> ; Electrical - 1 x 10 <sup>5</sup>		
Protection			
Isolation Voltage .....	≥ 1500V RMS between input, output, & probe		
Mechanical			
Mounting .....	Surface mount with two or four #6 (M3.5 x 0.6) screws		



The LLC4 combines resistance sensing circuitry with solid-state timing to provide single probe level maintenance. On adjustable units, the sensitivity adjustment allows accurate level sensing while ignoring foaming agents and floating debris. Isolated pulsed DC is provided at the probe to prevent electrolysis. A trickle current of less than 1mA determines the presence or absence of conductive liquid between the probe and common. The LLC4 Series can be used with many types of low voltage (resistance changing) transducers to perform other control functions like temperature limit control, photo limit control, condensation sensing, and ice sensing.

For more information see:  
 Appendix B, page 166, Figure 19 for dimensional drawing.  
 Appendix C, page 170, Figure 24 for connection diagram.

### Operation

**Drain (Pump-Down Mode):** When the liquid level rises and touches the probe, the time delay begins. This time delay prevents rapid cycling of the output relay and its load. At the end of the time delay, the output relay and LED energize and remain energized until the liquid level falls below the probe level. The output relay and LED de-energize and remain de-energized until the liquid rises and touches the probe.

**Fill (Pump-Up Mode):** When the liquid level falls below the probe, the time delay begins. This time delay prevents rapid cycling of the output relay and its load. At the end of the time delay, the output relay and LED energize and remain energized until the liquid level rises and touches the probe. The output relay and LED then de-energize and remain de-energized until the liquid level again falls below the probe level.

### Features:

- Single probe level control for conductive liquids
- Adjustable or fixed sensing up to 250 K $\Omega$
- Selectable or fixed fill or drain operation available
- 24, 120, or 230VAC models are available
- Isolated pulsed DC on the probes
- Isolated, 4A, SPDT output contacts

Approvals:

### Auxiliary Products:

- **Electrode:** P/N: PHST-38QTN
- **Threaded probe (24"):** P/N: LLP-24
- **Panel mount kit:** P/N: BZ1
- **8-pin socket:** P/N: NDS-8
- **Hold-down clips (sold in pairs):** P/N: PSC8 (NDS-8)

### Available Models:

LLC42A10A	LLC44A60A
LLC42A1A	LLC44B1F250
LLC42B15A	LLC44B20A
LLC44A10A	LLC44B2A
LLC44A1A	LLC44B30A
LLC44A2A	LLC44B4A
LLC44A4A	LLC44B5A
LLC44A5A	LLC44B5F100

If desired part number is not listed, please call us to see if it is technically possible to build.

### Order Table:

<b>LLC4</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>Input</b>		<b>Operation</b>	<b>Time Delay</b>	<b>Sense Resistance</b>
-2 - 24VAC		-A - Drain	Specify fixed delay	-A - Adjustable (1-250k)
-4 - 120VAC		-B - Fill	1-60s in 1s increments	-F - Fixed (Specify fixed resistance (1-250) in 1K $\Omega$ increments.)
-6 - 230VAC				

### Specifications

<b>Control</b>	Type . . . . . ON/OFF (single level) resistance sensor with built-in time delay to prevent rapid cycling	<b>Protection</b>	Surge . . . . . IEEE C62.41-1991 Level A
<b>Sensing Voltage</b>	. . . . . Pulsed DC at probe terminals	<b>Isolation Voltage</b>	. . . . . $\geq$ 1500V RMS between input, output & probe
<b>Sensing Resistance</b>	. . . . . Fixed or adjustable to 250K $\Omega$	<b>Mechanical</b>	
<b>Sensing Resistance Tolerance</b>	. . . . . Adjustable: 1K $\pm$ 500 $\Omega$ at low end; 250K $\pm$ 25% at high end; Factory fixed: $\pm$ 10% or 500 $\Omega$ , whichever is greater	<b>Mounting</b>	. . . . . Plug-in socket
<b>Input</b>		<b>Termination</b>	. . . . . Octal 8-pin plug-in
<b>Voltage</b>	. . . . . 24, 120, or 230VAC	<b>Dimensions</b>	. . . . . 2.91 x 2.39 x 1.78 in. (73.9 x 60.7 x 45.2 mm)
<b>Tolerance</b>	24VAC . . . . . -15%, +20%	<b>Environmental</b>	
120 & 230VAC . . . . . -20%, +10%		<b>Operating / Storage Temperature</b>	. . . . . -20 $^{\circ}$ to 60 $^{\circ}$ C / -40 $^{\circ}$ to 80 $^{\circ}$ C
<b>AC Line Frequency</b>	. . . . . 50/60 Hz	<b>Weight</b>	. . . . . $\approx$ 6 oz (170 g)
<b>Output</b>			
<b>Type</b>	. . . . . Electromechanical relay		
<b>Form</b>	. . . . . Isolated, SPDT		
<b>Rating</b>	. . . . . 4A resistive @ 240VAC; 1/10 hp @ 240VAC		



The LLC5 provides dual probe conductive liquid level control in a convenient octal plug-in package. Models are available for fixed fill or drain operation. Isolated, pulsed DC voltage on the probes prevents electrolytic plating. Less than 1 mA of current is used to sense the presence of conductive liquid between the probes and common. On adjustable units, the sensitivity adjustment eliminates false tripping caused by floating debris and foaming agents.

For more information see:  
 Appendix B, page 167, Figure 29 for dimensional drawing.  
 Appendix C, page 170, Figure 28 for connection diagram.

### Features:

- Dual probe level control for conductive liquids
- Onboard knob or fixed sensing up to 100KΩ
- Fill or drain operation available
- Select standard or diagnostic LED operation
- Diagnostic LED operation reduces adjustment & troubleshooting time
- 24, 120, or 230VAC models are available
- Isolated, 5A, SPDT output contacts

Approvals:

### Auxiliary Products:

- **Panel mount kit:** P/N: BZ1
- **Octal 8-pin socket:** P/N: NDS-8
- **Hold-down clips (sold in pairs):** P/N: PSC8 (NDS-8)
- **Electrode:** P/N: PHST-38QTN
- **Threaded probe (24"): P/N: LLP-24**

### Available Models:

LLC52AA	LLC54AF10
LLC52BA	LLC54BA
LLC54AA	LLC54BAS
LLC54AAS	LLC56AA

If desired part number is not listed, please call us to see if it is technically possible to build.

### Operation

**Drain (Pump-Down Mode):** When the liquid level rises and touches the high level probe, the output relay and LED energize and remain energized until the liquid level falls below the low level probe. The output relay and LED de-energize and remain de-energized until the liquid rises and touches the high level probe.

**Fill (Pump-Up Mode):** When the liquid level falls below the low level probe, the output relay and LED energize and remain energized until the liquid level rises and touches the high level probe. The output relay and LED de-energize and remain de-energized until the liquid level again falls below the low level probe.

### Order Table:

<b>LLC5</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>Input</b>	<b>Operation</b>	<b>Sense Resistance</b>	<b>Connection</b>	<b>LED Operation</b>	
-2 - 24VAC	-A - Drain	-A - Adjustable	-Blank - Standard (#6 Low, #8 High)	-Blank - Standard LED operation	
-4 - 120VAC	-B - Fill	-F - Fixed (Specify fixed resistance 1-100 in 1KΩ increments.)	-S - Reverse (#8 Low, #6 High)	-D - LED operation with diagnostics	
-6 - 230VAC					

### Specifications

Control Type .....	Resistance sensing for high & low level detection of conductive liquids	Rating .....	5A resistive @ 240VAC 1/10 hp @ 240VAC
Sensing Voltage .....	Pulsed DC at probe terminals	<b>Protection</b>	
Sensing Resistance .....	Factory fixed or adjustable to 100KΩ	Isolation Voltage .....	≥ 1500V RMS between input, output, & probe
Sensing Resistance Tolerance .....	Adjustable: 1K ±500Ω at low end; 100KΩ ±25%, 0% at high end	<b>Mechanical</b>	
Response Time .....	Factory fixed: ±10% or 500Ω whichever is greater	Mounting .....	Plug-in socket
Input Voltage .....	Debounce time delay <1s	Dimensions .....	3.01 x 2.39 x 1.78 in. (76.5 x 60.7 x 45.2 mm)
Tolerance .....		Termination .....	Octal 8-pin plug-in
24VAC .....		<b>Environmental</b>	
120 & 230VAC .....		Operating / Storage Temperature .....	-20° to 60°C / -40° to 80°C
AC Line Frequency .....	50/60 Hz	Weight .....	≅ 6 oz (170 g)
<b>Output</b>			
Type .....	Electromechanical relay		
Form .....	Isolated, SPDT		



The LLC6 Series is a plug-in, single-probe conductive liquid level control designed for low liquid level cutoff protection. It offers a factory fixed time delay of 1 - 60s and is available in input voltages of 24, 120, or 230VAC. LED indicator illuminates whenever the LLC6's 10A, SPDT output relay is energized. Available with automatic/manual reset or a special manual reset with power outage feature, which auto resets the unit when power is restored and the water level is acceptable. 24VAC and 120VAC units are recognized as limit switches under UL353 (230VAC units are UL508) and CSA certified under Standard 14.

For more information see:  
 Appendix B, page 166, Figure 19 for dimensional drawing.  
 Appendix C, page 170, Figure 26 for connection diagram.

### Operation

**Automatic Reset (Reset terminals not connected):** When liquid rises to the low level cutoff probe, the output relay and the LED indicator energize. When the liquid falls below low level cutoff probe, the output relay and the LED indicator de-energize after a fixed time delay.

**Manual Reset (Reset switch connected):** When the liquid level falls below the low level probe, the output relay and LED de-energize after a fixed time delay. When the liquid level rises to the low level probe, the output relay and LED indicator remain de-energized until the manual reset switch is opened; then they energize immediately.

**Power Outage Manual Reset (Reset switch connected):** A power outage causes the output relay and LED indicator to de-energize. Upon restoration of power, if the liquid level is above the low level probe, the output relay and LED indicator will re-energize. If the liquid level is below the low level probe, the output relay and LED indicator remain de-energized until the Normally Closed (NC) reset switch is opened.

### Features:

- Designed for low level cutoff protection
- Energized on wet probe
- Fixed time delay of 1 - 60s
- Fixed sense resistance of 5K - 250KΩ
- 24, 120, or 230VAC input voltage available
- Non-isolated, 10A, SPDT output contacts

Approvals:

### Auxiliary Products:

- **Electrode:** P/N: PHST-38QTN
- **Threaded probe (24"): P/N:** LLP-24
- **Panel mount kit:** P/N: BZ1
- **11-pin socket:** P/N: NDS-11
- **Hold-down clips (sold in pairs):** P/N: PSC11 (NDS-11)

### Available Models:

LLC6210F10M	LLC643F250M
LLC622F10P	LLC645F250M
LLC6410F10M	LLC6610F5P
LLC642F10M	

**If desired part number is not listed, please call us to see if it is technically possible to build.**

### Order Table:

<b>LLC6</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
	<b>Input</b>	<b>Time Delay (fixed)</b>	<b>Sense Resistance</b>	<b>Reset</b>
	-2 - 24VAC	Specify fixed delay	F - Fixed (Specify	M - Manual/Automatic
	-4 - 120VAC	in seconds (1-60) in 1s	fixed resistance in	Reset
	-6 - 230VAC	increments	kilohms (5-250)	P - Power outage
			in 1K increments.)	manual reset

### Specifications

<b>Control</b>	<b>Output</b>
Type .....ON/OFF (single level) resistance sensor with built-in time delay to prevent rapid cycling	Type .....Electromechanical relay
Sense Voltage .....12VAC nominal at probe terminals	Form .....Non-isolated, SPDT
Sense Resistance .....Fixed 5K - 250KΩ	Rating .....10A resistive @ 240VAC; 1/4 hp @ 125VAC; 1/2 hp @ 250VAC
Sense Resistance Tolerance .....Fixed ±10%	<b>Protection</b>
<b>Time Delay</b>	Surge .....IEEE C62.41-1991 Level A
Range .....1 - 60s in 1s increments	Isolation Voltage .....≥ 2500V RMS between input & output terminals
Tolerance .....±20%	<b>Mechanical</b>
Repeat Accuracy .....±10%	Mounting .....Plug-in socket
Time Delay vs Temp. & Voltage .....±10%	Termination .....11-pin relay type
Power Outage Reset Delay .....≤ 1s	Dimensions .....2.91 x 2.39 x 1.78 in. (73.9 x 60.7 x 45.2 mm)
<b>Input</b>	<b>Environmental</b>
Voltage .....24, 120, or 230VAC	Operating / Storage Temperature .....-40° to 60°C / -40° to 80°C
Tolerance 24VAC .....+20% to -15%	Humidity .....95% relative, non-condensing
120 or 230VAC .....+10% to -20%	Weight .....≅ 7.3 oz (207 g)
AC Line Frequency .....50/60 Hz	



The LLC8 Series is a low cost, single-probe conductive liquid level control designed for low liquid level cutoff protection. It offers a factory fixed time delay of 1 - 60s and is available for input voltages of 24, 120, or 230VAC. LED indicator illuminates whenever the LLC8's isolated, 10A, SPDT output relay is energized. Sense resistance is fixed from 5K - 250KΩ. Available with manual/automatic reset or a special manual reset with a power outage feature that auto resets the unit when power is restored and the water level is acceptable. 24 and 120VAC units are UL recognized as limit switches under UL353 (230VAC units are UL 508) and CSA certified under Standard 14.

For more information see:  
Appendix B, page 167, Figure 28 for dimensional drawing.  
Appendix C, page 170, Figure 25 for connection diagram.

### Operation

**Automatic Reset (Reset switch not connected):** When liquid rises to low level cutoff probe, output relay and LED indicator energize. When liquid falls below the low level cutoff probe, the output relay and LED indicator de-energize after a fixed time delay.

**Manual Reset (Reset switch connected):** When the liquid level falls below low level probe, the output relay and LED de-energize after a fixed time delay. When the liquid level rises to low level probe, the output relay and LED indicator remain de-energized until the NC manual reset switch is opened; then they energize immediately.

**Power Outage Manual Reset (Reset switch connected):** A power outage causes the output relay and LED indicator to de-energize. Upon restoration of power, if the liquid is touching the low level probe, the output relay and LED indicator will re-energize. If the liquid level is below the low level probe, the output relay and LED indicator remain de-energized until the NC reset switch is opened.

### Features:

- Designed for low level cutoff protection
- Energized on wet probe
- Fixed time delay 1 - 60s
- Fixed sense resistance of 5K - 250KΩ
- 24, 120, or 230VAC input voltages available
- Isolated, 10A, SPDT output contacts

Approvals:

### Auxiliary Products:

- **Quick connect to screw adaptor:**  
P/N: P1015-18
- **Electrode:** P/N: PHST-38QTN
- **Threaded probe (24"):** P/N: LLP-24
- **Female quick connect:**  
P/N: P1015-13 (AWG 10/12)  
P/N: P1015-64 (AWG 14/16)  
P/N: P1015-14 (AWG 18/22)

### Available Models:

LLC825F5M	LLC843F26P
LLC843F10M	LLC845F25P
LLC843F10P	LLC8610F12M
LLC843F26M	

If desired part number is not listed, please call us to see if it is technically possible to build.

### Order Table:

<b>LLC8</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
	<b>Input</b>	<b>Time Delay (fixed)</b>	<b>Sense Resistance</b>	<b>Reset</b>
	-2 - 24VAC	- Specify fixed delay	- F - Fixed (Specify	- M - Manual/Automatic
	-4 - 120VAC	in seconds (1-60) in 1s	fixed resistance in	Reset
	-6 - 230VAC	increments	kilohms (5-250)	- P - Power outage
			in 1K increments.)	manual reset

### Specifications

<b>Control</b>		<b>Protection</b>	
Type	Resistance sensing for conductive liquids with time delay	Surge	IEEE C62.41-1991 Level A
Sense Voltage	12VAC nominal at probe terminals	Isolation Voltage	≥ 2500V RMS input to output terminals
Sense Resistance	Fixed 5K - 250KΩ	<b>Mechanical</b>	
Sense Resistance Tolerance	±10%	Mounting	0.5 in. (12.7 mm) x .187 (4.76 mm) dia. nylon standoffs (3)
<b>Time Delay</b>		Termination	Electrical 0.25 in. (6.35 mm) male quick connect terminals
Tolerance	±20%	Reset Switch & Probe(s)	0.187 x 0.03 in. (4.75 x 0.76 mm) male quick connect terminals
Repeat Accuracy	±10%	<b>Environmental</b>	
Time Delay vs Temp. & Voltage	±10%	Operating / Storage Temperature	-40° to 60°C / -40° to 80°C
Power Outage Reset Delay	≤1s	Coating	Printed circuit board is conformal coated to resist moisture & corrosion
<b>Input</b>		Humidity	95% relative, non-condensing
Voltage	24, 120, or 230VAC	Weight	≅ 5 oz (141.7 g)
Tolerance	24VAC -15% - 20%		
	120 or 230VAC -20% - 10%		
AC Line Frequency	50/60 Hz		
<b>Output</b>			
Type	Electromechanical relay		
Form	Isolated SPDT		
Rating	10A resistive @ 120/240VAC; 1/4 hp @ 125VAC; 1/2 hp @ 250VAC		



The ARP Series is used in systems where equal run time for two motors is desirable. The selector switch allows selection of alternation of either load for continuous operation. LED's indicate the status of the output relay. This versatile series may be front panel mounted (BZ1 accessory required) or 35 mm DIN rail mounted with an accessory socket.

For more information see:  
Appendix B, page 167, Figure 31 for dimensional drawing.  
Appendix C, 170, Figure 29 for connection diagram.

### Operation

**Alternating:** When the rotary switch is in the "alternate" position, alternating operation of Load A and Load B occurs upon the opening of the control switch S1. To terminate alternating operation and cause only the selected load to operate, rotate the switch to position "A" to lock Load A or position "B" to lock Load B. The LEDs indicate the status of the internal relay and which load is selected to operate.

Note: Input voltage must be applied at all times for proper alternation. The use of a solid-state control switch for S1 may not initiate alternation correctly. S1 voltage must be from the same supply as the unit's input voltage (see connection diagrams). Loss of input voltage resets the unit; Load A becomes the lead load for the next operation.

**Duplexing (Cross Wired):** Duplexing models operate the same as alternating relays and when both the Control (S1) and Lag Load (S2) Switches are closed, Load A and Load B energize simultaneously.

The DPDT 8-pin, cross-wired option, allows extra system load capacity through simultaneous operation of both motors when needed. Relay contacts are not isolated.

### Features:

- Provides equal run time for two motors
- Alternating or electrically locked operation
- Low profile selection switch
- 10A output contacts
- LED status indication
- Industry standard base connection

Approvals:

### Auxiliary Products:

- **Hold-down clips (sold in pairs):**  
P/N: PSC8 (NDS-8)  
P/N: PSC11 (NDS-11)
- **Panel mount kit:** P/N: BZ1
- **11-pin socket:** P/N: NDS-11
- **8-pin socket:** P/N: NDS-8
- **DIN rail:** P/N: C103PM

### Available Models:

ARP23S	ARP43S
ARP41	ARP61S
ARP41S	ARP63
ARP42S	ARP63S
ARP43	

If desired part number is not listed, please call us to see if it is technically possible to build.

### Order Table:

<u>ARP</u>	<u>X</u>	<u>X</u>	<u>X</u>
	<b>Input</b>	<b>Output Form</b>	<b>Switch Operation</b>
	-2 - 24VAC	-1 - SPDT, 8-pin	-Blank - No Switch
	-4 - 120VAC	-2 - DPDT, 11-pin	-S - Rotary Switch
	-6 - 230VAC	-3 - DPDT, 8-pin cross wired	

### Specifications

Input		Protection	
Voltage.....	.24, 120, or 230VAC	Isolation Voltage.....	≥ 1500V RMS input to output
Tolerance	24VAC.....-15% - 20%	<b>Mechanical</b>	
	120 & 230VAC.....-20% - 10%	Mounting.....	Plug-in socket
AC Line Frequency.....	50/60Hz	Dimensions.....	3.2 x 2.39 x 1.78 in. (81.3 x 60.7 x 45.2 mm)
<b>Output</b>		Termination.....	Octal 8-pin or magnal 11-pin
Type.....	Electromechanical relay	<b>Environmental</b>	
Form.....	SPDT, DPDT, or cross wired DPDT	Operating / Storage Temperature.....	-20° to 60°C / -30° to 85°C
Rating.....	10A resistive @ 120/240VAC & 28 VDC; 1/3 hp @ 120/240VAC	Weight.....	≅ 5.6 oz (159 g)
Maximum Voltage.....	250VAC		
Life.....	Mechanical - 1 x 10 <sup>7</sup> ; Electrical - 1 x 10 <sup>6</sup>		

NOTE: Unit does not have debounce time delay.